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nEXO: a tonne-scale next-generation double-beta decay experiment

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The nEXO Collaboration is developing a proposal for a 5-tonne experiment with initial neutrinoless double-beta decay sensitivity approaching to 10^{28} years. The nEXO detector will be a homogeneous liquid xenon (enriched to 90% in ^{136}Xe) time projection chamber inspired by the highly successful EXO-200 detector. Energy resolution, event topology, and event localization in the large homogeneous detector will work in concert to simultaneously minimize and characterize backgrounds. In this talk we will describe the detector design choices and show the sensitivity that the detector can reach using only materials for which radiopurity has already been demonstrated.

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